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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,607	11/24/2003	David M. Lowe	2003B126	4238

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EXXONMOBIL CHEMICAL COMPANY
5200 BAYWAY DRIVE
P.O. BOX 2149
BAYTOWN, TX 77522-2149

EXAMINER	
HAILEY, PATRICIA L	

ART UNIT	PAPER NUMBER
1755	

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/720,607	LOWE ET AL.	
	Examiner	Art Unit	
	Patricia L. Hailey	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13,16-21,23-39 and 42-50* is/are pending in the application.

4a) Of the above claim(s) *46-50* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13, 16-21, 23-39, and 42-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 13, 2005, has been entered.

In Applicants' submission, claims 1-12, 14, 15, 22-24, 40, and 41 have all been cancelled; no new claims have been added.

Claims 13, 16-21, 25-39, and 42-50 remain pending in this application.

Election/Restrictions

2. Claims 46-50 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected process for selectively removing alkynes or diolefins from a feedstock also containing olefins, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on October 14, 2004.

Claims 13, 16-21, 25-39, and 42-45 are under consideration by the Examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 13, 16-21, 25-37, and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uzio et al. (U. S. Patent No. 6,498,280).

Uzio et al. teach a catalyst comprising at least one support, at least one element from Groups 8, 9, or 10 of the Periodic Table, at least one element from Group 14 of the Periodic Table, at least one element from Group 13 of the Periodic Table, and at least one alkali or alkaline earth metal, and, optionally, at least one halogen. See col. 4, lines 8-14 of Uzio et al.

Examples of Groups 8, 9, or 10 metals include rhodium, ruthenium, iron, and cobalt. Although platinum is preferred, the selected metal(s) from these groups is present in the catalyst in amounts ranging form 0.01% to 5% by weight with respect to the total catalyst weight. See col. 4, lines 15-21 of Uzio et al.

The Group 14 element (tin, germanium, lead) is present in an amount ranging from 0.01% to 5% by weight relative to the total catalyst weight. See col. 4, lines 20-25 of Uzio et al.

The Group 13 metal is selected from indium, gallium, and thallium, preferably indium, and is present in amounts ranging from 0.005% to 3% by weight relative to the total weight of the catalyst. See col. 4, lines 26-29 of Uzio et al.

Examples of the support include aluminas. See col. 4, lines 42-80 of Uzio et al.

Patentees' catalyst can be prepared by successive steps of depositing the metals, using any technique known in the art. These deposition steps can be performed in any order. Deposition can be performed by dry or excess impregnation, or by an ion

exchange method. Calcining can be performed at temperatures of about 500°C. See col. 4, lines 52-64 of Uzio et al.

The metals can be deposited using any known precursors that are soluble in an aqueous medium; for the alkali and Groups 13 and 14 metals, decomposable salts such as nitrates can be employed. See col. 5, lines 34-45 of Uzio et al.

Uzio et al. do not teach the specifically claimed combinations of Applicants' catalyst compositions, e.g., of a first component comprising rhodium, a second component comprising a metal other than rhodium and a third component different from rhodium and said second component, and selected from Groups 1-15. However, because this reference teaches a catalyst comprising metal components corresponding to those respectively claimed, as well as percentage amounts of these components that are numerically within the respectively claimed percentage ranges, one of ordinary skill in the art finds ample motivation in selecting the metals disclosed in Uzio et al. to readily obtain Applicants' claimed invention.

With respect to the claim limitations regarding the metal components "predominantly contained in an outer surface layer of the support", it is considered that because Uzio et al. teach that "any technique known to the skilled person" for depositing the metal components is employable to obtain Patentees' catalysts, one of ordinary skill in the art would reasonably expect that the known techniques encompassed by Uzio et al. would result in Patentees' metal components being present on the surface layer of the support.

7. Claims 13, 16-21, 25-39, and 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shepherd et al. (U. S. Patent No. 6,503,866).

Shepherd et al. teach a catalyst comprising an alumina support (col. 3, line 7 to col. 4, line 4), and a platinum group component (e.g., ruthenium, rhodium) present in catalytically effective amounts, e.g., from about 0.01 to about 2 mass % of the final catalyst. The platinum group component may be incorporated into the alumina support in any suitable manner, such as coprecipitation, ion exchange, or impregnation, and may be provided by compounds such as rhodium nitrate. See col. 4, lines 8-61 of Shepherd et al.

The catalyst may also contain a Group IVA (Group 14) metal component such as germanium and tin, in amounts ranging from about 0.01 to about 5 mass %. See col. 5, lines 7-58 of Shepherd et al.

Optionally, the catalyst may contain other components or mixtures thereof which act alone or in concert as catalyst modifiers to improve activity, selectivity, or stability. Examples of these components include rhenium, gallium, indium, nickel, iron, tungsten, molybdenum, zinc, and cadmium. Catalytically effective amounts of these components may be added in any suitable manner to the carrier material during or after its preparation, or to the catalytic composite before, while, or after other components are being incorporated. Amounts of these components range from about 0.01 to about 5 mass % of the composite. See col. 5, line 59 to col. 6, line 4 of Shepherd et al. This

disclosure is considered to read upon Applicants' claim limitations regarding the metal components Groups 1-15 of the Periodic Table, as recited in the instant claims.

Further, the platinum-group metal components may be dispersed homogeneously in the catalyst, or may be present as a surface layer component. See col. 4, line 62 to col. 5, line 6 of Shepherd et al. This disclosure, along with the aforementioned disclosure that the modifying components can be added to the composite before, while, or after other components are being incorporated, is considered to read upon the claim limitations that "the first and second components are predominantly contained in an outer surface layer".

In the preparation of the catalyst, following the incorporation of the desired components with the alumina support, a calcination step is employed. Calcination typically takes place at a temperature of from about 370°C to about 600°C. See col. 6, lines 21-42 of Shepherd et al., as well as col. 7, lines 9-39.

Also, a reduction step is employed. Reduction conditions include a temperature of from about 315°C to about 650°C. See col. 7, lines 40-64 of Shepherd et al., especially lines 50-56.

Shepherd et al. do not teach the specifically claimed combinations of Applicants' catalyst compositions, e.g., of a first component comprising rhodium, a second component comprising indium, and a third component different from said first and second components, and selected from Groups 1-15. However, because this reference teaches a catalyst comprising metal components corresponding to those respectively

claimed, as well as percentage amounts of these components that are numerically within the respectively claimed percentage ranges, one of ordinary skill in the art finds ample motivation in selecting the metals disclosed in Shepherd et al. to readily obtain Applicants' claimed invention.

Response to Arguments

In response to Applicants' arguments that the prior art does not teach or suggest the claimed depth dispersion in Applicants' claimed catalyst (i.e., a depth of not more than 300 microns), it is the Examiner's position that, because the prior art discloses the employment of metal components comparable to that respectively claimed, in addition to disclosing suitable techniques for incorporating the components into the support, one having ordinary skill in the art would find reasonable expectation that the prior art catalysts would exhibit a catalyst depth comparable to that respectively claimed, given that Applicants' claims are merely directed to the catalyst composition itself, and not any specific methods by which the catalyst is prepared. Further, the methods for obtaining Patentees' catalysts as discussed above are considered to obtain surface layer depths comparable to that instantly claimed.

In response to Applicants' arguments that the prior art does not teach the claimed combinations of metals, the prior art is considered to provide motivation to obtain said claimed combinations. For prima facie obviousness, the prior art need not

specifically teach a claimed combination, but only to suggest said combination, or provide motivation to obtain it.

For these reasons, Applicants' arguments are not persuasive.

Although the references cited in the above rejections have previously been cited, the above rejections are applied in view of Applicants' amendments to the claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patricia L. Hailey/plh
Examiner, Art Unit 1755
September 26, 2005

J. A. LORENGO
SUPERVISORY PATENT EXAMINER